

CLAIMS

1. A machine for producing a tubular product (T) by means of helical winding of strips of web material, comprising a mandrel (4) and a winding member (7) to helically wind the strips (S1, S2) of web material  
5 around said mandrel, characterized by at least one pressure member (31) cooperating with said mandrel, disposed along the path of the tubular product being formed on said mandrel, the pressure exerted by said pressure member promoting adhesion of the strips forming the product.

2. Machine as claimed in claim 1, characterized in that said  
10 pressure member comprises at least a wheel (33; 33A; 33B) and an actuator (35; 35A; 35B) to stress the wheel and the mandrel against each other.

3. Machine as claimed in claim 2, characterized in that said wheel is positioned to act on the outer surface of the tubular product, at the level of the edge line (L1) of adjacent turns of the outermost strip (S1) of web material  
15 forming the tubular product (T).

4. Machine as claimed in claim 3, characterized in that said the circular edge of said wheel is disposed with an inclination, with respect to the axis (A) of the mandrel, essentially equal to the inclination of the helical winding of said strips (S1, S2) of web material.

20 5. Machine as claimed in one or more of claims 2 to 4, characterized in that the circular edge of said wheel has a series of protuberances (34).

6. Machine as claimed in claim 5, characterized in that said protuberances have the form of a tothing.

25 7. Machine as claimed in one or more of claims 2 to 6, characterized in that the inclination of the axis of rotation (B) of the wheel (33; 33A; 33B) with respect to the axis (A) of the mandrel (4) is adjustable.

8. Machine as claimed in one or more of claims 2 to 7, characterized in that said wheel (33; 33A; 33B) is carried by a support (39, 41; 39A, 41A; 39B, 41B) sliding in a sleeve (43; 43A; 43B), and torsionally constrained to said sleeve.  
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9. Machine as claimed in claims 7 and 8, characterized in that said sleeve can be locked in an angularly adjustable position with respect to a fixed load-bearing structure (49).

10. Machine as claimed in claim 9, characterized in that said sleeve (43; 43A, 43B) comprises a flange (45; 45A, 45B) with slotted holes (47) to lock said sleeve in an angularly adjustable position.

11. Machine as claimed in one or more of the previous claims, characterized in that said pressure member (31) comprises at least a supporting element (53) for said mandrel (4).

12. Machine as claimed in claims 2 and 11, characterized in that the pressure member comprises two angularly staggered supports (53) that provide the mandrel with a reaction force to the stress applied by said wheel (33).

13. Machine as claimed in claim 12, characterized in that the contact points between said wheel and the product being formed on the mandrel and between said at least one support and said product lie approximately on a plane orthogonal to the axis of the mandrel.

14. Machine as claimed in one or more of the previous claims, characterized in that said pressure member (31) comprises two wheels (33A, 33B) acting on the tubular product (T) being formed around said mandrel (4).

15. Machine as claimed in claim 14, characterized in that said two wheels are positioned to act on the outer surface of the tubular product, one at the level of the joining line (L1) of adjacent turns formed by the outermost strip (S1) of web material, and the other at the level of the joining line (L2) of adjacent turns formed by the innermost strip (S2) of web material.

16. Machine as claimed in claim 14 or 15, characterized in that said two wheels are disposed staggered by around 180° about the axis (A) of the mandrel (4) and in a position wherein the straight line uniting their contact points with the tubular product being formed on the mandrel is approximately orthogonal to the axis of the mandrel.

17. Machine as claimed in one or more of the previous claims, characterized in that said wheel(s) (33; 33A, 33B) is/are motorized.

18. Machine as claimed in one or more of the previous claims, characterized in that said pressure member is positioned downstream of the winding member.

19. Machine as claimed in one or more of claims 1 to 17, characterized in that said pressure member is positioned upstream of the

winding member.

20. A method for producing a tubular product wherein at least a first strip (S1) and a second strip (S2) of web material staggered from each other are wound around a winding mandrel (4) by means of a winding member (7),  
5 the two strips being glued to each other, characterized in that pressure is applied to the outer surface of the tubular product being formed around said mandrel, along the path of the product being formed around said mandrel to stabilize adhesion between said two strips.

21. Method as claimed in claim 20, characterized in that said  
10 pressure is applied around the edge (L1) of a strip forming the adjacent turns that form the outermost layer of said tubular product.

22. Method as claimed in claim 20 or 21, characterized in that said pressure is applied to the outer surface of the tubular product at the level of the edge (L2) of the strip (S2) of web material, forming an inner layer of the  
15 tubular product.

23. Method as claimed in one or more of claims 20 to 22, characterized in that said pressure is applied downstream of the winding member.

24. Method as claimed in one or more of claims 20 to 22,  
20 characterized in that said pressure is applied upstream of the winding member.